

REMARKS

Interview Summary

Applicant thanks the examiner for the interview of January 9, 2007. In the interview, applicant discussed the general subject matter of the application and discussed distinctions between claim 1 and the cited art.

Status of Claims

The claim status is as follows:

Pending claims:	1-64
Rejected claims:	1-64
Appealed claims:	1-64

Status of Amendments

There are no pending amendments subsequent to the final rejection.

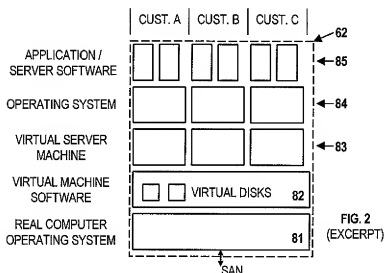
Summary of Claimed Subject Matter

In the following section, a concise summary of the disclosed subject matter is followed by paraphrased language from each of the independent claims involved in the appeal, with references to the specification by page and line number as required by 37 CFR § 41.37(c)(v).

The present application discloses a novel method and apparatus for providing computer services in which customers are able to purchase computer resources in the form of one or more virtual machines that are configured in accordance with each customer's specifications. (Title; p9l23-p10l5.) In at least some embodiments, the virtual machine can appear as a real server on the customer's own internal network. (p15l22-29; p29l4-28.) Customers have the full benefits of real hardware, coupled with the ability to reconfigure and upgrade their computer resources with great

speed and ease, potentially at a great cost savings due to the use of shared hardware and economies of scale. (*Id.*)

To that end, server systems (also referred to as “real computers”) 62 are equipped with an operating system 81 and virtual machine operating software 82 as shown in Fig. 2. (p35ℓ1-9.) In response to customer orders, virtual servers 83 are created with



virtual machine operating systems 84 and application or server software 85 in accordance with customer specifications. (p15ℓ22-29; p35ℓ10-23.)

Turning now to the claims, independent claim 1 recites an apparatus providing one or more computer services for a plurality of customers. (*E.g.*, Fig. 2, server systems 62; Figs. 4-6 real computer 30.) The apparatus includes a real computer on which is set up at the request of each of said customers at least one virtual machine for each of said customers. (*Id.*; p15ℓ22-29.) The virtual machines each have a specification specified by and configurable by the respective customers, and each have a separate operating system running thereon. (*E.g.*, Fig. 2, server systems 62; Fig. 6 real computer 30; p15ℓ22-29.)

Independent claim 20 recites a method of providing one or more computer services for a plurality of customers. (p12ℓ3-7.) The method includes a service provider setting up on a real computer at the request of each customer at least one virtual machine for each customer. (*E.g.*, Fig. 2, server systems 62; Figs. 4-6 real computer 30; p15ℓ22-29.) The virtual machines each have a

specification specified by and configurable by the respective customer, and each have a separate operating system running thereon. (*E.g.*, Fig. 2, server systems 62; Fig. 6 real computer 30; p15ℓ22-29.)

Independent claim 37 recites a method of operating a real computer on behalf of plural customers. (p13ℓ9-13.) The method includes operating multiple virtual machines on the real computer, each virtual machine having a specification specified by and configurable by a respective one of the customers in accordance with a computer service to be provided by the virtual machine on behalf of that customer. (*E.g.*, Fig. 2, server systems 62; Figs. 4-6 real computer 30; p15ℓ22-29.) Each of the virtual machines has a separate operating system running thereon to provide respective computer services to the respective customers. (Fig. 2, server systems 62; Fig. 6 real computer 30.)

Independent claim 54 recites a method of providing customers one or more computer services selected from: file, data and archiving services; applications hosting services; database hosting services; data warehouse services; knowledge management hosting services; digital media production services; "intellectual property" and streaming media services; simple web hosting services; complex e-Commerce web hosting services; high performance computation services; electronic messaging and conferencing services; and learning neuro-computer services. (p15ℓ4-14.) The method includes setting up on a real computer at the request of each customer at least one virtual machine for each of said customers. (*E.g.*, Fig. 2, server systems 62; Figs. 4-6 real computer 30; p15ℓ22-29.) Each virtual machine has a specification determined in accordance with the computer service or services requested by said customer and being configurable by said customer. (p15ℓ4-14, 22-29.) Each virtual machine has a separate operating system running thereon. (*E.g.*, Fig. 2, server systems 62; Fig. 6 real computer 30.)

Grounds of Rejection to be Reviewed on Appeal

Applicants seek review of the following ground of rejection:

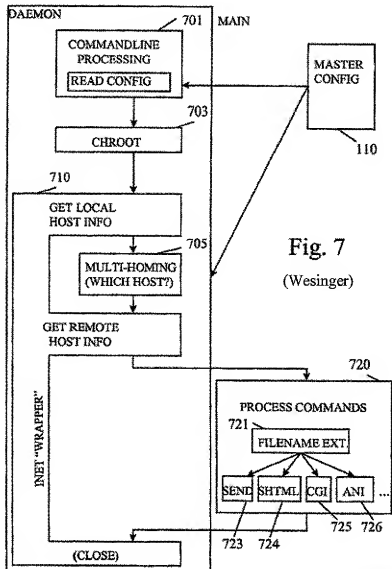
Claims 1-64 stand rejected under 35 USC § 102(e) as being anticipated by U.S. Patent App. Pub. No. 2001/0011304 (“Wesinger”), with reference to U.S. Pat. 6,434,594 (“Wesemann”), a Cisco News Release (“Cisco”), and a Seagate Software News Release (“Seagate”) as extrinsic evidence of inherency and the state of the art.

Argument

The claims do not stand or fall together. Instead, applicants present separate arguments for various independent and dependent claims. After a concise discussion of cited art, each of these arguments is separately argued below and presented with separate headings and subheadings as required by 37 CFR § 41.37(c)(1)(vii).

Wesinger

Wesinger discloses a web server employing a multi-homed, modular framework. (Title.) A multi-homed server is a server that behaves like multiple servers, responding to requests to multiple addresses, e.g. ISP.com, XYZCorp.com, johnsmith.com, etc. (¶9.) Fig. 7 illustrates the logical structure of Wesinger's Web server. (¶44.) The main execution thread of the Web server is controlled by a daemon, which is a UNIX process that remains memory resident and causes specified actions to be taken upon occurrence of specified events. (¶7; ¶45.) After performing some initial command line processing 701



and changing its user mode 703, the daemon waits to receive a connection request. (§45-47.) When a connection request is received, the daemon forks a copy of itself to handle the connection request.¹ (§48.) In handling the connection request in block 705, the daemon identifies the address and name of the “virtual machine” for which a connection is requested. (§49.) By “virtual machine”, Wesinger means one of the multiple homes that is being hosted by the daemon process, which appear to external Web users as multiple distinct and independent servers. (§12; §49.) However, this “virtual machine” is nothing more than an appropriately-configured child process of the daemon process. (§49 (“The determination of which virtual host the daemon child process is to become is made in block 705, under the heading of ‘multi-homing.’”); §52.) Except for a passing mention that the Web server software runs on a physical UNIX machine, Wesinger is entirely silent about operating systems. (§21.)

Wesemann

Wesemann discloses a system and method for distributing the execution of computer application programs among one or more computational resources connected by a network. (Abstract.) Wesemann’s invention is platform independent, with the independence being provided by a Resident Module that resides at a layer above the computer operating system. (Abstract; c8t29-34.) This permits a network of computer nodes running different operating systems to provide Virtual Processing resources as if they were all running the same operating system platform. (c8t29-34.) Wesemann’s Virtual Processors are standardized components for performing

¹ In other words, the daemon initiates an independent process to handle the connection request while the original daemon process continues waiting for another connection request.

work. (c446-55; c5454-61.) Wesemann does not disclose operating systems running on virtual machines.

Rejection of Claims 1-64 under 35 USC § 102(e)

The standard for anticipation is strict. "To anticipate a claim, the reference must teach every element of the claim." MPEP 2131. "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). "The identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). Applicants respectfully request reversal of this ground of rejection because (as explained below) the cited art does not teach every element of the claims.

Independent claim 1 recites "at least one virtual machine for each of said customers, said at least one virtual machine for each of said customers having a specification specified by and configurable by the respective customer and having a separate operating system running thereon." The examiner cites Wesinger's virtual hosts as anticipating these limitations. To address Wesinger's silence regarding operating systems, the examiner asserts that "it is inherent that the plurality of virtual hosts in the real server 100 runs different operating system because they are virtual hosts (see, evidence Wesemann ...)." (Final Action p3415-18.)

Applicant first notes that despite Wesinger's passing use of the term "virtual machine", Wesinger does not actually teach a virtual machine in the sense required by the claims of the present application. (*In re Cortright*, 165 F.3d 1353, 1359, 49 USPQ2d 1464, 1468 (Fed. Cir. 1999) (The broadest reasonable interpretation of the claims must be consistent with the interpretation that those skilled in the art would reach in light of the specification.)). See also 37

CFR 1.75(d)(1).) As explained for example in paragraphs 70 to 72 of the present specification, a virtual machine in the present context and as will be understood by those skilled in the art is a virtual construct that is created by special software and effectively exists only in the memory or other storage area of a real computer. A virtual machine acts as though it were a real computer but with the hardware components of the real computer “virtualised”. Thus, a virtual machine typically has a virtual CPU (central processor unit) on which an operating system runs, virtual memory, virtual storage, etc. Wesinger teaches only a daemon that forks off independent processes to handle connection requests. No virtual hardware components are created. For at least this reason, independent claim 1 and its dependent claims are allowable over the cited art.

Moreover, the examiner’s assertions of inherency are incorrect. “In relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art.” (*Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990) (emphasis in original). See also *In re Robertson*, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999).) The examiner’s explanation that a virtual host has an operating system because it is a virtual host is circular, and does not establish that an operating system is necessarily present. The examiner’s citation of Wesemann’s teachings of a process that runs on multiple operating system platforms also fails to establish that the “virtual machine” of Wesinger is a virtual machine as required by the claims of the present application. The examiner is reminded again that the claims of the present application have specifically been amended in a previous response to require that the “virtual machines” of the present application have operating systems running thereon. An operating system is necessarily present in a virtual machine *of the type presently claimed in the instant application*.

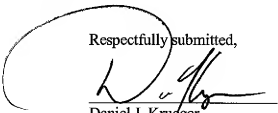
The point is, the independent claims of the present application are distinguished from Wesinger and Wesemann at least by the requirement of a "virtual machine". The reference in the claims of the present application to the virtual machine "having an operating system running thereon" is to ensure that it is understood that the virtual machines as presently claimed are "true" virtual machines, in the sense discussed at for example paragraphs 70 to 72 of the present specification.

Independent claims 20, 37, and 54 similarly recite a virtual machine having an operating system running thereon. As explained above, the cited art fails to teach this limitation. For at least these reasons, independent claims 20, 37, and 54, along with their dependent claims, are allowable over the cited art.

Conclusion

Applicant respectfully submits that the claims are in condition for allowance. If the examiner has any questions or comments, or otherwise feels it would be advantageous, she is encouraged to telephone the undersigned at (713) 238-8055.

Respectfully submitted,



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